

NOTE

Examination of Some Sensory Organs on the Head of
Last Instar Larvae of the Lesser Cornstalk Borer,
Elasmopalpus lignosellus (Zeller)
(Lepidoptera: Pyralidae)

The lesser cornstalk borer, *Elasmopalpus lignosellus* (Zeller) (Lepidoptera: Pyralidae) is an economic pest of several crops in the southeastern U.S., including peanut, sorghum, soybeans, and small grains (Funderburk et al. 1987. J. Entomol. Sci. 22: 159-168). Outbreak population configurations typically occur in hot, dry weather in peanuts grown in sandy soils (Mack et al. 1987. Peanut Science 14: 61-66). Larvae are usually subterranean, and may feed on pegs (gynophores), developing pods, or on plant

tissue in the root-hypocotyl region.

It is probable that *E. lignosellus* larvae chemically locate their host plants and acceptable plant parts (Huang and Mack 1989. Environ. Entomol. 18(5): 763-767). It would be useful to document the sensilla in *E. lignosellus* available for host-finding, since it is the sensilla that would be involved in chemoreception. This note documents the antennal and maxillary sensilla on the head of *E. lignosellus* larvae.

Scanning electron micrographs were made

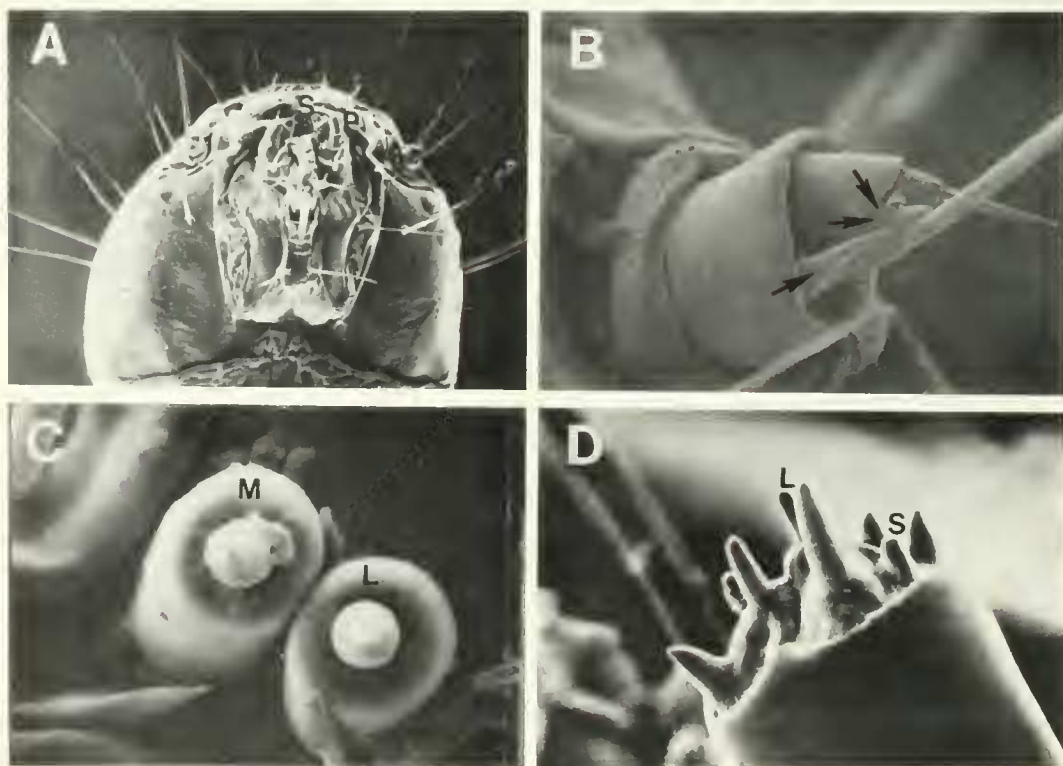


Fig. 1A-D. Scanning electron micrographs of *E. lignosellus*. A, Ventral view of the head showing the antenna (A), and sensilla styloconica on the maxillary galea (S) and maxillary palpus (P). 92 $\times$. B, Antenna with three sensilla basiconica (arrows). 850 $\times$. C, Lateral (L) and medial (M) sensilla styloconica on the maxillary galea. 4600 $\times$. D, Maxillary palpus with types (L, longer; S, shorter) of sensilla basiconica on the tip. 2900 $\times$.

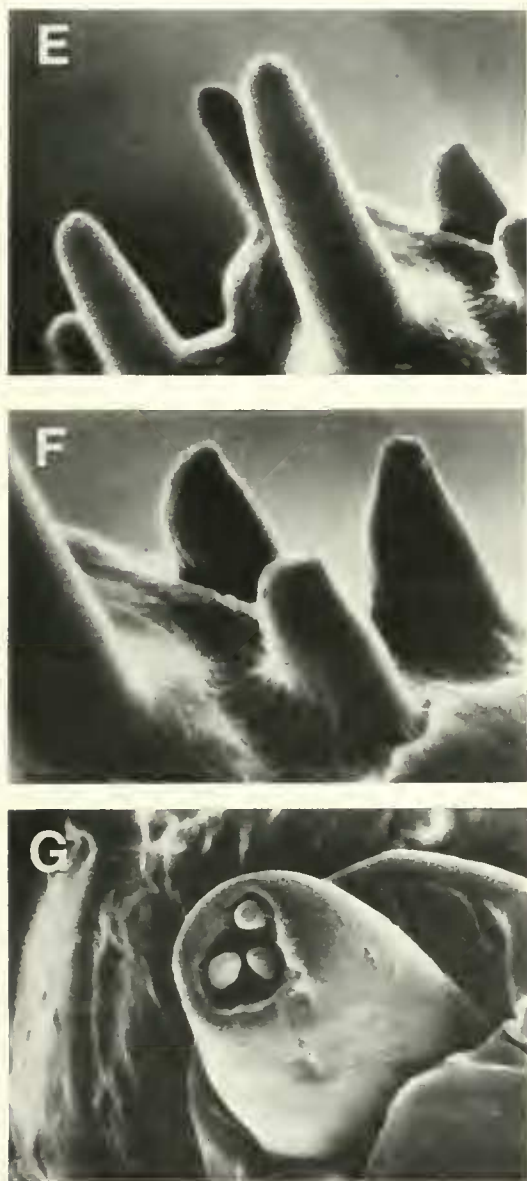


Fig. 1E–G. E, Long type of sensilla basiconica on the maxillary palpus. 8500 $\times$. F, Short type of sensilla basiconica on the maxillary palpus. 12,700 $\times$. G, A maxillary palpus with only three sensilla basiconica on its tip instead of eight. 2500 $\times$.

of the antennae, maxillary palpi, and the sensilla styloconica on the maxillae of *E. lignosellus*. Larvae were taken from a laboratory colony, immobilized with CO₂, and killed in ethanol. The heads were severed

and successively dehydrated in 70%, 85%, 95%, and 100% ethanol, with 5 min in each concentration. Heads were immersed in hexamethyldisilazane for 5 min and then air-dried at room temperature. Tissue was mounted on stainless steel stubs and sputter coated with gold for microscopy.

The ventral view of the head of *E. lignosellus* (Fig. 1A) was similar to those of other lepidopterous larvae (Schoonhoven 1987, In Chapman et al. 1987, Perspectives in chemoreception and behavior. Springer-Verlag, NY), with each antenna possessing three sensilla basiconica (Fig. 1B). Each maxillary galea typically bore two sensillae styloconica which were nonsocket pegs with an apical papilla (Fig. 1C). Eight sensillae basiconica, with five being longer than the others, were observed on the tip of the maxillary palpi (Fig. 1D). The long sensillae basiconica had a smoother surface than the smaller ones and a small peg at their distal end (Fig. 1E), while the shorter ones were blunt with creased surfaces (Fig. 1F). It is interesting to note that not all maxillary palpi bore eight sensillae basiconica (Fig. 1G).

The antennal and maxillary sensillae of a few lepidopterous species have been examined, including the tobacco hornworm *Manduca sexta* (L.) (Hanson and Detheir 1973, J. Insect Physiol. 19: 1019–1034), the silkworm *Bombyx mori* (L.) (Morita and Yamashita 1961, J. Exp. Biol. 38: 851–861), the spruce budworm *Choristoneura fumiferana* (Clemens) (Albert 1980, Can. J. Zool. 58: 842–851), and the darksided cutworm *Euxoa messoria* (Harris) (Devitt and Smith 1982, Int. J. Insect. Morph. Embryol. 11: 255–270). All of these insects are terrestrial. The number and morphology of the sensillae on the antennae and maxillary palpi of *E. lignosellus* are very similar to those of previously described larvae. The morphology of the sensillae of *E. lignosellus*, which is primarily subterranean, do not differ from 4, primarily terrestrial larvae.

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